REMARKS

This is in response to the Official Action of March 1, 2006 in connection with the above-identified application. Applicants have amended the claims of the instant application in order to more precisely define the scope of the present invention, taking into consideration the outstanding Official Action.

Specifically, Applicants have amended claim 1 to incorporate the subject matter recited in original claim 4. Claim 1 now recites a compound semiconductor material, wherein a precursor solution of the compound semiconductor material is prepared by chemical bath deposition, photochemical deposition or sol-gel process. In light of the amendment to claim 1, claim 4 has been canceled.

Additionally, Applicants have added new claims 16-19. New independent claim 16 recites a thin film transistor comprising a substrate, a gate electrode deposited on the substrate, a dielectric layer deposited on the gate electrode, a source electrode and a drain electrode deposited on the dielectric layer, and an active layer deposited on the source electrode and drain electrode, wherein the active layer comprises a group II-VI compound doped with a dopant ranging from 0.1 to 30 mol% and wherein the dopant is selected from a group consisting of at least one of alkaline-earth metals, group IIIA elements, group IVA elements, group VA elements, group VIA elements, and transitional metals. New claims 17-19 mirror original claims 2-4, but depend from claim 16 rather than claim 1.

Support for these new claims may be found throughout the specification as originally filed, including, e.g., Figures 5A through 5D. Accordingly, Applicants respectfully submit that all claims now pending in the instant application are in full compliance with the requirements of 35 U.S.C. §112 and are patentable over the references of record.

The rejection of claims 1-3 and 6-9 under 35 U.S.C. §103(a) as being unpatentable over Kawasaki et al. (US Pub. App. No. 2005/0127380) in view of Wahl et al. (US Pat No. 4,321,163) has been carefully considered but is most respectfully traversed in light of the amendments to the claims and the following comments.

Applicants wish to direct the Examiner's attention to the basic requirements of a prima facie case of obviousness as set forth in the MPEP § 2143. This section states that to establish a prima facie case of obviousness, three basic criteria first must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Section 2143.03 states that all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Applicants also most respectfully direct the Examiner's attention to MPEP § 2144.08 (page 2100-114) wherein it is stated that Office personnel should consider all rebuttal argument and evidence presented by applicant and the citation of In re Soni for error in not considering evidence presented in the specification.

The obviousness rejection over Kawasaki in view of Wahl is directed at claims 1-3 and 6-9, and does not include the subject matter recited in claims 4 and 5. Applicants respectfully submit that this serves as an implied admission that the subject matter of claims 4 and 5 is not disclosed or suggested by Kawasaki and/or Wahl. Accordingly, the incorporation of the subject matter recited in claim 4 into claim 1 obviates the rejection of claims 1-3 and 6-9 as being obvious over Kawasaki in view of Wahl. That is to say, neither Kawasaki nor Wahl disclose a compound semiconductor

material wherein a precursor solution of the compound semiconductor material is prepared by chemical bath deposition, photochemical deposition or sol-gel process.

Accordingly, Applicants respectfully submit that a §103(a) rejection over Kawasaki in view of Wahl does not properly establish a *prima facie* case of obviousness according to the guidelines set forth in MPEP §2143 and therefore this rejection should be withdrawn.

The rejection of claim 5 under 35 U.S.C. §103(a) as being unpatentable over Kawaski in view of Wahl as applied to claim 1 and further in view of Baek et al. (US Pub. App. No. 2003/0219920) has been obviated for similar reasons. The basis for the rejection of claim 5 depends on the basis for the rejection of claim 1 over Kawasaki in view of Wahl. As the incorporation of the subject matter recited in original claim 4 into claim 1 has obviated the rejection of claim 1 over Kawasaki in view of Wahl, it follows that the rejection of claim 5 over Kawasaki, Wahl and Baek has also been obviated. That is to say, neither Kawasaki, Wahl nor Baek, either standing alone or taken in combination, disclose or suggest every feature of newly amended claim 1.

Accordingly, Applicants respectfully submit that a §103(a) rejection over Kawasaki in view of Wahl and Baek does not properly establish a *prima facie* case of obviousness according to the guidelines set forth in MPEP §2143 and therefore this rejection should be withdrawn.

Finally, the rejection of claim 8 under 35 U.S.C. §103(a) as being unpatentable over Kawaski in view of Wahl as applied to claim 1 and further in view of Bai et al. (US Pub. App. No. 2004/0222412) has been obviated for the same reasons as discussed above. The basis for the rejection of claim 8 depends on the basis for the rejection of claim 1 over Kawasaki in view of Wahl. As the incorporation of the subject matter recited in original claim 4 into claim 1 has obviated the rejection of claim 1 over Kawasaki in view of Wahl, it follows that the rejection of claim 8 over Kawasaki, Wahl and Bai has also been obviated. That is to say, neither Kawasaki, Wahl nor Bai, either standing alone or taken in combination, disclose or suggest every feature of newly amended claim 1.

Accordingly, Applicants respectfully submit that a §103(a) rejection over Kawasaki in view of Wahl and Bai does not properly establish a *prima facie* case of obviousness according to the guidelines set forth in MPEP §2143 and therefore this rejection should be withdrawn.

With respect to the rejection of claim 4, the subject matter of which has now been incorporated into claim 1, under 35 U.S.C. §103(a) as being unpatentable over Kawasaki in view of Wahl and further in view of Tanaka et al. (US Pat. No. 6,028,020), Applicants have carefully considered the grounds for rejection but most respectfully traverse the rejection in view of the following comments.

The Official Action urges that Kawasaki in view of Wahl discloses all of the features recited in claim 1, yet with respect to the subject matter recited in original claim 4, acknowledges that neither Kawasaki nor Wahl disclose a precursor solution of the compound semiconductor material that is prepared by chemical bath deposition, photochemical deposition or sol-gel process.

However, the Official Action urges that Tanaka discloses a precursor solution of compound semiconductor material, and mores specifically a silicon compound, is prepared by Sol-gel process. In light of this teaching, the Official Action urges that it would have been obvious to modify the invention of Kawasaki with the teaching of Tanaka so as to reduce processing times.

Applicants respectfully submit that this rejection properly establish a *prima facie* case of obviousness. First, with respect to the Kawasaki reference, Applicants note that there is absolutely no disclosure of a precursor of a compound semiconductor material in the prior art reference. Rather, Kawasaki merely discloses a transparent electrode comprising a transparent conductive material such as ZnO that is doped with group I, III, V or VII elements. No mention is made of utilizing a precursor of the transparent conductive material in forming the transparent conductive material on the substrate. Absent evidence to the contrary, Applicants respectfully submit that the invention of Kawasaki does not contemplate the use of a precursor.

In light of this, Applicants respectfully submit that it would be impossible to modify the invention of Kawasaki as proposed in the Official Action, i.e., to use a sol-gel process to prepare a precursor, because there is no precursor to prepare in Kawasaki. Without a teaching that the doped transparent conductive material disclosed in Kawasaki is prepared with a precursor solution, the teaching of Tanaka is useless.

Further, the Official Action cannot argue that the Tanaka reference is cited as teaching both the use of a precursor and the use of sol gel processing in preparation of the precursor. This is because the motivation provided by the Official Action applies only to why one would be motivated to use sol-gel processing. The provided motivation statement of reducing processing time would only apply to why one of ordinary skill in the art would find it obvious to use a Sol-gel process. The statement does not also apply to why one would be motivated to use a precursor, since use of a precursor would appear to increase processing time. Ultimately, the Official Action has focused on only the claim limitation of Sol-gel processing, while ignoring the claim limitation of a precursor. In doing so, the Official Action has failed to address each and every element of the claimed invention, and therefore has not properly established a §103(a) rejection according to the guidelines set forth in MPEP §2143.

With respect to the Tanaka reference, Applicants again note that Tanaka is directed to a method for manufacturing a single crystal quartz thin film (silicon compound) having a thickness of 5 nm to 50μm through a sol-gel process and peeling process and does not mention in any way a compound semiconductor material as claimed in the instant application. The sol-gel process disclosed in Tanaka is used to form a precursor solution of a silicon compound, and not to prepare a precursor of a group II-VI compound doped with of at least one of alkaline-earth metals, group IIIA elements, group IVA elements, group VA elements, group VIA elements and transitional metals as claimed in the present application. Thus, Tanaka only teaches that a precursor to a silicon compound may be prepared by a sol-gel process.

Applicants respectfully submit that Tanaka must is some way suggest that this sol-gel process may also be used to prepare a precursor of a semiconductor compound

material before it can be properly argued that it would be obvious to modify the teaching of Kawasaki with the teaching of Tanaka. Applicants fail to see how one of ordinary skill in the art would be motivated by the teaching in Tanaka that a silicon compound precursor may be prepared using a sol-gel process to apply the sol-gel process to the preparation of a totally different compound that serves a different function. The silicon compound disclosed in Tanaka is an insulating material and not a semiconductor material and wound be incapable of serving as an active layer of a thin film transistor. Accordingly, Applicants respectfully submit that there would be no motivation for why one of ordinary skill in the art would look to teaching in Tanaka related to an insulating layer to gain guidance on a semiconductor layer. Without such a proper motivation, Applicants respectfully submit that a proper §103(a) rejection according to the guidelines set forth in MPEP §2143 has not been established.

For all of the forgoing reasons, Applicants respectfully submit that a proper §103(a) rejection over the subject matter recited in original claim 4 has not been established, and therefore the rejection of the subject matter recited in claim 4 (and now incorporated into claim 1) should be withdrawn.

Finally, with respect to the newly added claims, Applicants note that none of the prior art of record discloses the thin film transistor as claimed in the instant application. Specifically, none of the prior art references disclose a substrate, a gate electrode deposited on the substrate, a dielectric layer deposited on the gate electrode, a source electrode and a drain electrode deposited on the dielectric layer, and an active layer deposited on the source electrode and drain electrode, wherein the active layer comprises a group II-VI compound doped with a dopant ranging from 0.1 to 30 mol% and wherein the dopant is selected from a group consisting of at least one of alkaline-earth metals, group IIIA elements, group IVA elements, group VA elements, group VIA elements, and transitional metals. Of particular note, Applicants respectfully submit that the prior art references fail to disclose an active layer as claimed in the new claims.

Accordingly, Applicants respectfully submit that the new claims are patentable over the references of record and are in immediate condition for allowance.

In view of the above comments and further amendments to the claims, favorable reconsideration and allowance of all of the claims now present in the application are most respectfully requested.

Respectfully submitted,

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